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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/566,631	09/25/2006	Masatoshi Kuroda	049677-0177	7222
20277 7590 11/16/2007 MCDERMOTT WILL & EMERY LLP 600 13TH STREET, N.W. WASHINGTON, DC 20005-3096			EXAMINER DUONG, DIEU HIEN	
			ART UNIT 2821	PAPER NUMBER
			MAIL DATE 11/16/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/566,631

Applicant(s)

KURODA ET AL.

Examiner

Dieu Hien T. Duong

Art Unit

2821

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 03 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 September 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>01/12/07, 01/31/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Status of Application

1. This Office Action is a response to Applicants' Preliminary Amendment filed on January 31, 2006. In virtue of this communication, claims 1-4 are currently presented in the instant application.

Inventorship

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Priority

3. Acknowledgement is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d).

Information Disclosure Statement

4. The information disclosure statements (IDS) submitted on 01/12/07 and 01/31/06 in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is considered by the examiner.

If applicant is aware of any prior art or any other co-pending application not already of record, he/she is reminded of his/her duty under 37 CFR 1.97 to disclose the same.

Drawings

5. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "spherical core" and "spherical shell" must be shown or the features canceled from the claim. No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 3-4 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 3:

The phrase "a hemispherical luneberg lens" in line 2 is unclear. It is not clear that the "hemispherical luneberg lens" of claim 3 is a part of the spherical luneberg lens of claim 1 (since the luneberg lens which is configured by combining lens parts of spherical core and spherical shell, it is considered as a spherical luneberg lens) or the "hemispherical luneberg lens" is a separated one.

The phrase "a reflecting plate which is attached to a two-divided cross section of a sphere of this lens" is unclear. It is not clear where is the "reflecting plate" is attached to since it is not clear how "this lens" which is hemispherical luneberg lens (half of a sphere) includes the two-divided cross section of a sphere.

Regarding claim 4:

The phrase "a luneberg lens" in line 2 is unclear. It is not clear that the "luneberg lens" of claim 4 is the same or different with the "luneberg lens" in claim 1. If they are different, it should be "a second luneberg lens". If they are same, it should be "said luneberg lens".

Claim 4 recites the limitation "the hemispherical luneberg lens" in line 5.

There is insufficient antecedent basis for this limitation in the claim.

Clarification is required.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hutchins et al. (US 2,943,358) in view of Robinson (US 2,849,713).

Regarding claim 1, Hutchins discloses, in Figure 2 and col. 7, lines 1-5, a luneberg lens comprising a lens (a, b in Figure 2) which is configured by combining lines parts of spherical core (center shell in Figure 2) and spherical shell (shells 2-9 in Figure 2), wherein the lens is sealed by a synthetic resin film (first layer of two layers of polyester plastic in col. 7, lines 1-5) which is formed along a surface of the lens and of which own relative dielectric constant is higher than a relative dielectric constant of the outer most layer of the lens.

Hutchins does not disclose a thickness is 100µm or less. However, such difference is not of patentable merits since it would have been matter of design choice to select the thickness of the sealed layer to seal the lens from moisture and to increase the mechanical strength of the luneberg lens. Therefore, to employ the thickness of

100µm or less would have been deemed obvious to a person skilled in the art of antenna.

Hutchins does not disclose the shell-like resin foam.

Robinson discloses, in col.3, line 26-50, the shell-like resin foam.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the shell-like resin foam of Robinson in the luneberg lens of Hutchins to achieve the claimed invention, doing so would reduce the thickness of the luneberg lens (col. 4, lines 1-3).

Regarding claim 2, as applied to claim 1, Hutchins/Robinson disclose, wherein the synthetic resin film is a shrink film (the first coating layer of polyester plastic is shrink film, see Hutchins, col. 7, lines 1-5).

Claim Rejections - 35 USC § 103

10. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hutchins et al. (US 2,943,358) in view of Robinson (US 2,849,713) and further in view of Grenell (US 6,215,453 B1).

Regarding claim 3, as applied to claim 1, as best understood, Hutchins/Robinson disclose, wherein the said lens including a hemispherical luneberg lens ([a] in Figure 2 of Hutchins), a reflecting plate ([d] in Figure 2 and col. 7, lines 21-34 of Hutchins) and a primary feed (col. 2, lines 4-5 of Hutchins) which is placed at a focal point portion of the lens.

Hutchins/Robinson does not disclose a holding unit.

Grenell discloses, in Figure 1C, a holding unit.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the holding unit of Grenell in the luneberg lens system of Hutchins/Robinson to achieve the claim invention, doing so would provide a support for the primary feed.

Regarding claim 4, as applied to claim 1, as best understood, Hutchins/Robinson discloses, said luneberg lens of which surface is sealed by a cover made by synthetic resin (second layer of two layer of polyester plastic, see Hutchins, col. 7, lines 1-5), a primary feed (col. 2, lines 4-5 of Hutchins) which is placed at a focal point portion of the lens, and a hemispherical lens ([a] in Figure 2 of Hutchins) of the luneberg lens.

Hutchins/Robinson does not disclose a thickness of 2mm or less. However, such difference is not of patentable merits since it would have been matter of design choice to select the thickness of the cover layer to cover the lens from moisture and to increase the mechanical strength of the luneberg lens. Therefore, to employ the thickness of 200mm or less would have been deemed obvious to a person skilled in the art of antenna.

Hutchins/Robinson does not disclose a holding unit.

Grenell discloses, in Figure 1C, a holding unit.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the holding unit of Grenell in the luneberg lens system of Hutchins/Robinson to achieve the claim invention, doing so would provide a support for the primary feed.


Inquiry

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dieu Hien T. Duong whose telephone number is 571-272-8980. The examiner can normally be reached on Monday - Friday, from 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglas W. Owens can be reached on 571-272-1662. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DD
Art Unit 2821

 11/13/07

DOUGLAS W. OWENS
SUPERVISORY PATENT EXAMINER